



DIGITAL TRANSFORMATION IN THE INDIAN AUTOMOTIVE INDUSTRY

Banibrata Sarkhel¹ | Dr. Harish S. Oza²

¹Research Scholar, Sabarmati University

²Research Supervisor, Sabarmati University

ABSTRACT

Contemporarily and hence Technologies with Smart Connected Products (SCP) are impacting automotive industry globally, reshaping not only competition, but the business processes also. New generation Cloud-Supported SCP with embedded technology integrated with complex combination of hardware, sensors, data storage, microprocessors, software and connectivity combined in various ways is fueling new Business Strategies of product and service innovations, shorter product life cycles, and cross-boundary industry disruptions (Hanelt et al., 2015). Customer value creation process is transformed from traditional product-centric companies to augment their revenue streams through Augmented Reality and hence reshaping competition. Jeff Immelt, Ex-Chairman of G.E., said- 'every industrial company must become a software company' (Porter & Heppelmann, 2014; 2017). Additionally, rise of social media (Facebook, Twitter, etc) empowered customers as powerful market players and reach almost everyone- anywhere and anytime (Hanelt et al., 2015).

KEYWORDS: Automotive Industry, SCP, Customer Value Creation, Digital Transformation.

INTRODUCTION:

As the fourth largest car market in the world, India is the fastest growing among the top five markets for light vehicles (cars, utility vehicles, vans and pickup trucks) with an estimated market size of about 4 million units in 2018 (Thakkar, 2019). Estimates indicate it will emerge as the third largest car market by 2021 (Gupta et al., 2018). With most developed country markets facing saturation, global automotive OEMs are increasingly focusing on emerging markets like India as a primary engine of future growth. This resulted in intense competition among 18 incumbent mass-market firms vying for market share. With digital technologies reshaping competition and companies as also changing the manner in which customers engage with automotive OEMs across the purchase journey- from product discovery and consideration to research, purchase and post-purchase transactions (Srivatsan et al., 2017), the effort of top auto OEMs to cope with such disruptive changes assumes increasing significance.

OBJECTIVE OF THE STUDY:

Our research studies the digital transformation, which have a discernible association between the current market standing of the top Indian passenger OEM and the extent of their adoption of digital initiatives to enhance their competitiveness and customer value and whether such actions relate to their current and future market standing. Though some are ahead of others in transforming their business models, the overall deployment in India lags way behind from at par global companies.

RESEARCH METHODOLOGY:

Beyond an analysis and appreciation of the disruptive effects of digitization across industries, we reviewed published literature on future trends in the global and Indian automotive industry especially the ones related to the transformative impact on business models of incumbents. Primary research included actual observations at over hundred automobile dealership showrooms across the country. This was complemented by secondary archival data from media reports, company annual reports and press releases. A qualitative content analysis (Hsieh & Shannon, 2005) was employed as the primary approach to develop case studies on the digital technology supported initiatives of five of the top car manufacturing companies in India. Study of value chain framework detailed by Porter & Heppelmann and the business model analysis framework detailed in Hanelt et al. (2015), we identified six changes impacting Indian automotive OEMs. Thereafter, pinpointing the response initiatives of the top Indian passenger vehicle OEMs on each of the business model pillars. Finally we comparing their initiatives to garner overall insights at sector level to cope with this disrupting impact of digitization.

MAJOR RESULTS AND FINDINGS:

With specific reference to the top Indian Automotive OEMs context, we now elaborate on their related individual initiatives and intentions against each of the six disruptive forces.

- I. Diverse mobility:** Mobility concept is changing along with the mindset and attitude of customers and OEMs need to think of themselves as mobility providers rather than vehicle manufacturers (Schulze, MacDuffie & Taube, 2015; Srivatsan et al., 2017). Although, penetration of shared mobility in India remains low compared with China and the United States,

a major shift is under way in densely populated cities where the use of e-hailing cabs costs less, comparatively, than driving a personal car (Gupta et al., 2018). Simple App-Based taxi hailing services like Ola, Uber, Revv, Zoomcar have managed to capture a huge market share of Indian cities with their app-based services. (Karthick & Ramakrishnan, 2017).

- ii. Electrification:** Electric vehicles emergence is favored by environmental concerns, lifestyle changes of urban area inhabitants and the general development of the internet of things. However, significant differences remain over the longer term, in sales growth forecasts of electric vehicles (EV) and some estimate global penetration to reach 50% only after 2040 (McGee, 2018). The differences stem from three main obstacles- uncertainty over energy transition policies, the purchase cost of an electric vehicle (EV) and its limited range of autonomy that together with a poor charging infrastructure causes 'range anxiety' (Donada & Perez, 2018). However, the prices of lithium-ion batteries (which make EVs expensive) are falling as a result of higher volumes and better chemistry and going forward they may not need to be subsidized by the government (Economist, 2017).

Electrification has just started to take off in India (Gupta et al., 2018) has the ambition of having all new vehicles on Indian roads electrically powered by electricity by 2030. This, however, has been scaled down to 15% of total vehicle sales in the next five years (Sharma, 2019). However, sales dropped 40% in India during FY 2018 to 1200 electric cars, which is insignificant compared to total new car sales. Additionally, as of now, no Indian firm produces lithium-ion batteries- the primary driving force in an EV, and the top 5 global manufacturers are based either in South Korea or China (Economist, 2017).

- iii. Connectivity:** As cars get connected to each other and to the wider infrastructure, they offer increased scope of car-usage based services, 'infotainment' related innovations, location-based and emergency services, and smart services and maintenance (Beiker et al., 2016; Srivatsan et al., 2017).

Connectivity is still in the early stages of adoption in India, being oblivious of the benefits of technology vs cost (HBL 2018). A minuscule share of Indian vehicles come with factory-fitted connectivity features (Gupta et al., 2018) and estimates of current penetration in India vary between 1 to 3% of the total car population (Piparsania, 2018; Statista, 2018). Only three of the top five passenger vehicle OEMs namely Maruti-Suzuki, Mahindra and Honda, already offer connectivity features in some of their products in India (Honda, 2018; Mahindra, 2018; Maruti, 2018), while early 2017, Tata Motors collaborated with Microsoft India for roll out of in-car connectivity (Microsoft, 2017). Mahindra has agreements with Ford on power-train sharing and connected car solutions in India and during 2016, launched a connected vehicle platform named DiGiSENSE becoming the first OEM to create an ecosystem of technology partners (Mahindra, 2018).

- iv. Autonomous Driving:** Formerly, automation in the automotive industry

was associated with manufacturing processes in production lines. With self-driving, digital-enabled automation has moved forward in the value chain to actual product use (Hanelt et al., 2015).

The Government of India is not in favor (being in favor of saving jobs of existing drivers) of fully autonomous vehicles (AV) and neither industry nor regulatory players are confident of rapid AV sales uptake, weak traffic infrastructure and lack of self-discipline in the driving culture (Gupta et al., 2018). However, the government is working towards introducing a mandate which will bring Advanced Driver Assist Systems (ADAS) in all cars by 2022 (FE, 2018).

- v. **Digital marketing & sales:** New car retail business is going to be impacted with Global a shift in new car retail sales process from traditional Dealer showroom visit to ARstores is being driven by the growing use of digital technology by consumers (Mentuccia, Coffman & Raab, 2015). Companies like Tesla Motors, Audi, Daimler Benz, BMW AG & Hyundai Motor have piloted new concepts like virtual showrooms (AR enabled) and direct online sales to customers reducing the importance of dealers as intermediaries in the car sales process (Economist, 2015). Consumer surveys concomitantly indicate that the number of dealer visits made by customers before final purchase of the vehicle, has been falling over the years and 50% of buyers have made a decision on both brand and model before visiting a dealer (Srivatsan et al., 2017). Hyundai Motor, the second largest domestic car manufacturer, recently piloted online sales of passenger vehicles in India through a digital marketing initiative named HyBuy. Maruti in 2015 launched NEXA distribution channel, where customers are explained the product features by trained Relationship Managers with the aid of iPads connected to large television. Maruti's long term goal is to make 20% of its total sales through NEXA outlets (Maruti, 2018b).
- vi. **Digital after-sale services:** With the increase use of SCPs, it shall enable a fundamental shift from reactive service to preventive, proactive and remote service (Porter & Heppelmann, 2015). Digitally delivered after-sale services and/or use of AR is still at its nascence. Maruti revamped pre-owned car business through roll out of digitally integrated, stand-alone True Value outlets across the country. Mahindra has initiated the multi-brand used car sales and service businesses through two subsidiaries MFCWL & MFCFS. All five top firms have implemented Mobile service alert and booking systems.

Table 1: Digital initiatives of top Indian automotive OEMs

Value Creation	Product Development	Infotainment systems; Partnering with global auto OEMs; Connected vehicle options; Multiple operating systems on same product; Global design centres; Collaborating with technology companies
	Procurement & Manufacturing	Increasing number of models rolled from the same line
Value Delivery	Logistics & Warehousing	Partnerships with logistics & infrastructure providers
	Marketing & Sales	Separate channel for premium customers; Partnering with ride hailing companies; Multi-brand used car sales and service; Offering EVs as shared taxis; Digital showrooms; Online sales of new cars; Digitally integrated used-car outlets; Marketing thru social media; Entering car sharing business; Partnering for shared 3-wheelers;
	After-sale Service	Differentiating after-sales for premium customers; Service alerts over sms
	Human Resources	Hiring personnel from world's leading auto OEMs & technology companies; Digital training of personnel; Use of digital tools for training

Source: Adapted from Porter & Heppelmann, 2014; 2015 & authors own research

Table 2 uses the business model (BM) framework outlined by Hanelt et al., (2015) and maps each OEM on the initiatives deployed under each of the four BM pillars.

Table 2: OEM-wise comparison of digital initiatives

Initiative	Company				
	Maruti	Hyundai	Mahindra	Honda	Tata Motors
Consumer co-creation using digital tools	Yes	Yes	Yes	-	Yes
Global design centres	Yes	Yes	Yes	Yes	Yes
Infotainment systems	Yes	Yes	Yes	Yes	Yes
Multiple models from same line	Yes	Yes	Yes	Yes	Yes
Marketing online through social media	Yes	Yes	Yes	Yes	Yes
Car-less showrooms	--	Yes	Partial	--	Planned
Online sale of cars	Piloted for some models	Yes	Piloted for some models	--	Piloted for some models
Partnering with taxi aggregators	Yes	Yes	Yes	--	Yes
Online service booking	Yes	Yes	Yes	--	Yes
Digitally facilitate used-car sales	Yes	Yes	Yes	--	--

Source- Authors research

IMPLICATIONS OF THE STUDY AND CONCLUSION:

Our work provides an empirically rooted understanding of how major passenger vehicle OEMs are transforming in the Indian context and how they are preparing for future disruptions expected from the proliferation of digital technologies. Limited to exploring the digital initiatives of major automotive OEMs, our work does not include consumers or other related organizations such as software and mobility platform providers who are intimately connected to the industry. Secondly, our data is mostly limited to country level initiatives of the top Indian manufacturers and does not take account of the global initiatives of their parent (in case of MNCs). The top passenger vehicle Indian OEMs have all responded to digitization and other environmental changes through incremental changes to their business model, but all the top Indian manufacturers trail behind their top global counterparts not only in terms of R&D investments, but also incorporating the concept of 'mobility as a service' into their business model. They are also at a stage of nascence with respect to the introduction of smart, connected products and Augmented Reality and are as yet struggling to cope with the digital revolution that is transforming the automotive industry worldwide. A natural future extension would be to explore how the entire mobility ecosystem is transforming manufacturers in India amid an increasingly digitally enabled world.

REFERENCES:

- I. Beiker, S., Hansson, F., Suneson, A., and Uhl, M. 2016.
- II. Donada, C., and Perez, Y. 2018. "Editorial (on Electromobility)," The International Journal of Automotive Technology & Management (18:3)
- III. Gupta, S., Huddar, N., Iyer, B., and Moller, T. 2018. "The future of mobility in India's passenger vehicle market,"
- IV. Hanelt, A., Piccinini, E., Gregory, R. W., Hildebrandt, B., and Kolbe, L. M. 2015. "Digital Transformation of Primarily Physical Industries-Exploring the Impact of Digital Trends on Business Models of Automobile Manufacturers,"
- V. Hsieh, H. F., and Shannon, S. E. 2005. "Three approaches to qualitative content analysis," Qualitative Health Research (15:9)
- VI. Portals of Honda, Hyundai, Tata Motors, Maruti, Mahindra, Microsoft, Statista, TOI, The Economist.
- VII. Karthick, S., and Ramakrishnan, L. 2017. "App-based Taxi Aggregators and Entrepreneurial Opportunities,"
- VIII. McGee, P. 2018. "Carmakers take electric fight to the factory floor,"
- IX. Mentuccia, L., Coffman, J. P., and Raab, C. 2015. "Driving automotive growth through opportunities in the digital world,"
- X. Piparsania, V. 2018. "Connected vehicles: The next big thing for Digital India?," Counterpoint August 27, 2018.
- XI. Porter, M. E., and Heppelmann, J. E. 2014, 2015, 2017
- XII. Schulze, A., Paul MacDuffie, J., and Täube, F. A. 2015. "Introduction: knowledge generation and innovation diffusion in the global automotive industry—change and stability during turbulent times,"
- XIII. Srivatsan, R., Bhattacharya, J., Mandviwala, Y., and Jain, D. 2017. "Changing gears 2020," Bain & Company May, 2017